

RE-ESTABLISHMENT OF THE GENUS ALDAMA
(COMPOSITAE-HELIANTHEAE)

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ALDAMA and A. dentata were described as new by La Llave and Lexarza (1824) from plants collected near Córdoba in Veracruz, Mexico. Lessing (1830, 1834) assigned a Schiede collection from near Jalapa (225) to Aldama dentata and in the earlier paper included a description of the genus and species and drawings of floral and inflorescence details. He described A. dentata as erect while noting that La Llave had described it as procumbent. DeCandolle (1836) transferred A. dentata to his new Gymnopsis, a broadly conceived genus in which he included species now assigned to various other genera. DeCandolle also described as new, G. schiedeana, referring to the Schiede collection. He described G. dentata as erect and having a conical receptacle but G. schiedeana as procumbent and having a convex receptacle. Bentham and Hooker (1860) accepted both of these species but considered them best assigned to Sclerocarpus, and Hemsley (1881) made the new combinations. Since that time Aldama has been included in Sclerocarpus by most authors although application of the binomials has varied widely.

The two genera, Sclerocarpus, as typified by S. africanus, and Aldama, as typified by A. dentata, are superficially similar. Both have neutral ray flowers with yellow ligules and perfect tubular disk flowers. In both genera the receptacular bract completely surrounds the mature marginal disk achene and becomes somewhat thickened and sculptured. The bract in Aldama, however, remains relatively thin and pithy and is easily removed from about the achene while the bract in Sclerocarpus becomes thick and hard and difficult to remove. There are a number of other significant differences between Aldama and Sclerocarpus suggesting strongly that they be considered distinct. These are indicated in the following table.

Major Characters Differentiating Aldama from Sclerocarpus

Aldama	Sclerocarpus
Leaf blade lanceolate; margin entire or minutely denticulate. Petiole short.	Blade ovate-trullate or deltoid; margin coarsely toothed or dissected. Petiole long.
Involucre biseriate; bracts dark or brownish, appressed to the flowers.	Involucre uniseriate or rarely biseriate; bracts green, spreading or reflexed.
Receptacle convex.	Receptacle ovoid or conical.
Ray flowers with short tube and linear-oblong ligules.	Ray flowers with long tube, the ligules ovate to orbicular.
Ray achenes loculate, thin-walled, flattened when dry.	Ray achenes usually fleshy throughout, often twisted when dry.
Disk flowers with definite short tube, 10-nerved; lobes short, deltoid, unbearded.	Disk flowers without definite tube, mostly 5-nerved; lobes long-lanceolate, often dark bearded within.
Anthers brownish, exerted at anthesis; connective short, deltoid.	Anthers yellow, usually retained in the corolla; connective long-lanceolate.
Style short, the branches flattened, broadest just below the apex.	Style long, the branches terete, attenuate.
Mature marginal disk achenes often radially compressed-trigonus.	Mature marginal disk achenes usually subterete or somewhat laterally compressed.
Mature marginal receptacular bracts thin, chartaceous-pithy, corrugate, wrinkled or pitted, sometimes with 2 prominent lateral ribs.	Mature marginal receptacular bracts thick and sclerified, rarely tough and fibrous, usually with raised tubercles, occasionally with low longitudinal ribs.
Chromosome number, $N = 17$.	Chromosome numbers, $N = 11, 12, 14, 18$.

Study of a duplicate of Schiede 225 indicates that it is assignable to Aldama dentata. La Llave's description of A. dentata as procumbent may be explained by the condition of plants which may survive well beyond the normal growing season. A. dentata was described as flowering in March. At this time of the year in Córdoba, where the type was collected, plants of the previous year may occasionally be found with the apex having died back or having been grazed and with only one or a few procumbent basal branches remaining. These sometimes root at basal nodes leaving little evidence of the original stem and roots. DeCandolle's description of the receptacle of Gymnopsis (Aldama) dentata as conical and that of G. schiedeana as convex is probably due to the different appearance of the receptacle when young and after maturity. While the flowers are maturing, the receptacle is convex. After the achenes and receptacular bracts are shed, the drying receptacle constricts marginally, forcing the center of the disk higher. Plants from northern South America, usually identified as Sclerocarpus coffeacola Klatt are also assignable to Aldama dentata although specimens from this region tend to be smaller and have smaller heads than those from Mexico and Central America. All the specimens of Aldama examined can be assigned to the single species, Aldama dentata.

SYSTEMATIC TREATMENT

ALDAMA La Llave & Lexarza, Nov. Veg. Descr. 14. 1824.

Type species: Aldama dentata La Llave & Lexarza.

Gymnopsis DC., Prodr. 5:461. 1836. (In part).

Sclerocarpus. (Of authors, in part).

Erect herbaceous annals, strigose-hispidulous; branching opposite below, alternate above; leaves lanceolate, short-petiolate, blade shallow-toothed or subentire; heads numerous, radiate, often long pedunculate; receptacle chaffy, convex or drying conoid; involucre campanulate, biseriate; involucral bracts subfoliaceous, appressed to the disk flowers; ray flowers neutral, sterile, the achenes thin-walled, locular, flattened when dry; disk flowers perfect, fertile, the corolla tubular, 10-nerved, with definite tube and limb; stigmas somewhat flattened, broadest below apex; mature receptacular bracts enclosing the achenes and shed with them; mature marginal receptacular bracts radially or laterally compressed, thick, pithy, the surface prominently pitted and ridged; achenes black, pappus a low crown of basally fused bristles, a low ridge or absent.

ALDAMA DENTATA La Llave & Lexarza, Nov. Veg. Descr. 14. 1824.
Type: MEXICO: VERACRUZ: Córdoba: "...in inundatis rivuli
Huehueyapa S. Josephi del Corral." (Holotype not seen,
possibly not extant).

Gymnopsis dentata (La Llave & Lexarza) DC., Prodr. 5:561.
1836.

Gymnopsis schiedeana DC., Prodr. 5:561. Type: MEXICO:
VERACRUZ: "...inter segetes ad margines dumetorum
Jalappam, Jun," G. Schiede 225 (Holotype probably at
HAL, isotype MO!).

Sclerocarpus dentatus (La Llave & Lexarza) Benth. & Hook.
f. ex Hemsl. Biol. Cent. Am. Bot. 2:164. 1881.

Sclerocarpus schiedeana (DC.) Benth. & Hook. f. ex Hemsl.
Biol. Cent. Am. Bot. 2:164. 1881.

Sclerocarpus kerberi Fourn., Bull. Bot. Soc. Fr. 20:183.
1883. Type: MEXICO: VERACRUZ: Córdoba, 31 Jul 1882.
E. Kerber 19 (Holotype M; isotype K!; type fragment F!).

Sclerocarpus coffeaecolus Klatt., Ann. Naturh. Hofmus.
Wein. 9:360. 1895. Syntypes: COLUMBIA (VENEZUELA):
Valle de Aragua, Hacienda Palmar de San Matthes, E.
Otto 811 (?) (Holotype probably at W, not seen,
isotype GH!; type fragment US!); Moritz 25, no date or
locality (Holotype probably at W, not seen); Grosourdy
1862, without collection number or locality (Holotype
probably at W, not seen). (Isotype of E. Otto 811 (?)
here designated Lectotype: GH!).

Sclerocarpus schiedeana var. elongatus Greenm., Proc.
Am. Acad. 32:309. 1897. Syntypes: MEXICO: VERACRUZ:
Wartenburg, near Tantoyuca, 1895, L. C. Ervendberg 98,
99 (GH!); MORELOS: fields around Cuernavaca, 31 Oct
1896, C. G. Pringle 6606 (GH! MICH! MO! NY! US! VT!).
(Isotype of Pringle 6606 here designated Lectotype:
MO!).

Gymnolomia acuminata Blake ex Robinson., Proc. Am. Acad.
49:505. 1913. Type: MEXICO: TAMAULIPAS: "prope
Gómez Fariás," 13-21 Apr 1907, E. Palmer 582 (Holotype
GH!; isotypes F! NY! US!).

Sclerocarpus elongatus (Greenm.) Greenm. & Thompson.,
Ann. Mo. Bot. Gard. 1:412. 1915.

Erect annuals, sometimes long-lived, (0.3) 0.7-1.5 (2.5) m. tall, mostly strigose-hispidulous; leaves opposite below, alternate above, (1) 4-8 (14) cm. long; petioles 2-15 mm. long; blades linear-lanceolate to narrowly ovate, scabrous to substrigose above, strigose-hispidulous beneath, mostly minutely few-toothed, apex acute-acuminate, rarely obtuse, base cuneate or rounded; heads numerous, (3) 6-10 (13) mm. high, solitary, terminating the branches or 2-3 together, the terminal one sometimes with peduncles 7-13 cm. long; involucre biseriate, campanulate, mostly 5-9 mm. high; outer involucral bracts elliptic-lanceolate to ovate, scabrous to strigose, ciliate, apex acute to obtuse, sometimes squarrose, often dark veined; inner involucral bracts mostly equaling in number and subtending the rays, usually longer and broader than the outer bracts, the apex often obtuse or rounded; ray flowers 5-7 (11), ligules linear-oblong (2.5) 8-13 (18) mm. long, mostly shallow-toothed, ray achenes epappose or with minute scales on the angles; disk flowers (8) 20-70, the corolla (2.5) 4-6 mm. long, yellow-orange, the lobes sometimes reddish; mature receptacular bracts 2.4-3.5 mm. long, brownish, purple or mottled, laterally compressed or the marginal ones radially compressed-trigonus with thickened lateral ribs, the surface mostly glabrous, shallowly wrinkled or with deep pits and prominent irregular ridges; bracts of the central disk to 8 mm. long, tubular or laterally compressed with an apical tooth surpassing the corollas; achenes of the marginal disk flowers 2-3.5 mm. long, obovoid-fusiform, trigonus or laterally compressed and narrowly and obliquely obovoid, pappus mostly minute or absent, rarely a short scale or tooth.

Two varieties of Aldama dentata are distinguishable. In addition to the typical variety, three collections from western Michoacán and southeastern Jalisco represent a previously undescribed variety. These varieties may be distinguished by means of the following key.

KEY TO THE VARIETIES OF ALDAMA DENTATA

Outer involucral bracts conspicuously shorter than the inner; apex of the inner bracts mostly obtuse or rounded; peduncles mostly strigose-pilose with appressed or spreading hairs mostly less than 1.5 mm. long
. 1. var. dentata

Outer involucrel bracts subequal to the inner; apex of the inner bracts narrowly acute or strongly acuminate; peduncles with coarse spreading hairs mostly more than 1.5 mm. long2. var. zamorensis

1. ALDAMA DENTATA La Llave & Lexarza var. DENTATA.

This variety is variable and widespread. It is somewhat weedy in habit and sometimes is a dominant species in fallow grain fields. It is usually shorter than the following variety often not exceeding one-half meter in height.

Distribution: Eastern Mexico including southern Tamaulipas and Veracruz; central Mexico, including Querétaro, México and Morelos; western Mexico, including Nayarit, Jalisco, Colima, and Michoacán; southern Mexico including Puebla, Oaxaca and Chiapas; British Honduras, Honduras, Guatemala and Northern Venezuela.

Chromosome number: N = 17 (Feddema 1541, 1556, MICH).

2. ALDAMA DENTATA La Llave & Lexarza var. ZAMORENSIS Feddema, var. nov.

Var. *hirsuta*, pilis plerumque 1-3 mm. longis; involucri bracteae interiores anguste acutae vel forte acuminatae; receptaculum plerumque ovatum; marginis disci paleae matureae, purpureae, laevigatae, vel leviter aspero-corrugatae; radiorum achaenia epapposa vel pappus vix 0.1 mm. longus.

Type: MEXICO: MICHOACAN: 27 km SE of Zamora, 16 Aug 1961, Feddema 1724 (Holotype MICH).

Pubescence of the younger portions of the stem, branches and peduncles mostly hirsute with stiff, spreading hairs 1.5-3.0 mm. long with prominent, yellowish bases; receptacle low-convex or ovoid-conoid when living, becoming strongly ovoid-conoid after the fall of the achenes; inner involucrel bracts only slightly longer than the outer, the apex narrowly acute or strongly acuminate; exposed adaxial surface of the involucrel bracts with mostly suberect, yellowish hairs mostly more than 1.4 mm. long; ray achenes epappose or with a pappus only suggested by low irregularities apically on the angles; mature marginal receptacular bracts mostly laterally compressed, rarely a few radially compressed, the surface mostly slightly irregularly wrinkled, usually without prominent, wing-like ribs laterally; marginal disk achenes epappose or with the pappus reduced to a low collar or irregular rim.

Chromosome number: N = 17 (Feddema 1724 MICH).

Other specimens examined: MEXICO: JALISCO: 1 mi. W. of Ayo el Chico, 23 Aug 1958, R. McVaugh 17208 (MICH); MICHOACAN: 2 mi. E. of Zamora, 6 Aug 1960, R. M. King 3645 (MICH, NY, TEX, US).

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